Research Proposal of the Thesis Titled

Urban parks and well-being of children: An inquiry into spatio-cultural relationship in parks of Pune city.

Submitted for the award of the Degree of

Doctor of Philosophy

by

Shefali Deepak Arora

(Enrolment No.: 202204011)

Under the guidance of **Dr. Bhavesh Shah**

In the

Unitedworld School of Design

KARNAVATI UNIVERSITY

Karnavati University, Gandhinagar

(November, 2024)

Urban parks and well-being of children: An inquiry into spatio-cultural relationship in parks of Pune city.

Introduction to topic:

In pre-independence and post-independence era, we as a community were growing in all possible directions in India. As people were looking for stability, children's point of view or necessities were seldom given thought to. The trend of developing open ended spaces for children began in post war era, with design of playgrounds in city to meet the physical aspects of child development. The idea slowly picked up momentum but it has been observed that child appropriate infrastructure has not been specifically planned.

The current world population indicates that by the year 2030 majority of population would be dominated by children. India is home to 472 million children between 0-18 years, which makes 39 percent of the country's total population. With majority children population residing in cities/ towns, there are many challenges faced by children living in urban areas with regard to their overall development and rights. Today, in an urbanization India, urban setting has phenomenal impact on the growth and development of children. According to dictionary definitions, "being happy, healthy, or prosperous" is a desired state; in other words, "well-being" encompasses both living situations and subjective experiences and feelings. Additionally, possibilities for growth and self-fulfilment, the balance of pleasure and suffering, and the fulfilment of desires are all associated with well-being (Camfield et al., 2010)

As quoted by (Ben-Arieh et al., 2014) "The concept refers to the qualities of life and to the many possible dimensions of a good or bad life".

Children in the urban areas today have access to urban parks, but are these urban parks designed in accordance with the child development theories? Do these parks mentally, physically simulate and help in child betterment? The answer here is NO; specially designed urban parks catering to varied age groups are not designed on a large scale. Typical play areas with equipment are designed to feed the creative aspects for children. As a part of study it can be said that, a child particularly has 3 magnets- Home, Garden (play area) and school, all these are inter connected spaces which have their own

attributes and characters to it. The study of these needs to be done on the bases of spatial perceptions and relevance. Hence the study aims at understanding the spatial perceptions, human psychology and theory of associations, space association and design generation. Different age groups require different kinds of play. Catering to the age group till pre -teen is crucial for they are formative years for character development for any child. Thus their space associations and interactions outside and inside these urban parks vary accordingly.

Literature review:

Introduction to literature review:

Urban parks are the 'Lungs of the city'. Quite literally and psychologically as well. They not only cater to the physical aspect, but social, psychological, mental, community well-being as well. Children are the major contributors, users and indicators of well-being. Thus studying the aspects that help foster a positive well-being index amongst children is of utmost importance.

The focus here is on various factors which indicate that urban parks are contributors to the well-being of children. It is an evaluation of published, cross-sectional literature, papers, articles, reports which are important for the study of topic. A study of anthropometry, city planning, urban design, landscape social aspects, psychological aspects have been done for developing a framework for the research. The first part of review will focus on historic evolution of urban parks, city planning principles and their associations with children.

This will be followed by the study of varied theories associated with well-being of children and psychological aspects, environmental psychology, behavioral theories and varied organizations and their role in well-being of children.

Need for Literature review:

This literature review aims to explore the intricate relationships among child development policies, developmental and behavioral theories, factors influencing children's well-being, role of urban parks in fostering positive outcomes for children aged 3-9. By synthesizing previous research across these domains, this study seeks to identify and analyze various elements contributing to the varied aspects of children's

well-being, with specific reference to the influence of urban parks as an environmental factor.

Understanding these associations is essential, as identifying key variables that impact children's well-being has become increasingly important in shaping policies and practices for optimal child development. Consequently, this research will emphasize the need to examine these variables to provide insights into enhancing the developmental experiences of young children.

This research thus will help us to comprehend and undertake the current situation addressing the research gap. The analysis will help us identify and generate well-being indexes for the urban parks across Pune.

Questions generated for literature review are as follows:

1. Why are the visual and functional parameters important for the well-being of children?
2. Why do planning principles in urban parks play a critical role in well-being of children?
3. What are the characteristics for visual attributes that influence well-being in children using urban parks?
4. What effects do the spatio-cultural relationship of urban park have on children?

The literature review has been broadly categorized under four subheads:

1. Study of attributes and factors of associations of children and urban parks.

- (Kurt Konakoğlu et al., 2021) The study notes that a high rate of urbanization is seen in industrialized nations with stable socioeconomic standing, and that many people are drawn to and choose to reside in metropolitan regions. Children's playgrounds, sports fields, home gardens, municipal parks, district parks, neighbourhood and pocket parks, squares, pedestrian zones, gardens, roof gardens, and other alternative spaces are examples of urban areas that make up ecological cells of green texture of the city. Discussion in the article focus on the points such as: An urban park is generally situated 2-4 km from the city centre and can be reached via public transportation or within a 30-60-minute walking distance. Facilitate recreational sports by promoting activities such as walking, cycling, and skating. Contribute to

conservation by preserving and developing historical and cultural values, as well as protecting avian, insect, and other wildlife populations in urban environments. Contribute to environmental regulation by influencing the urban climate and water cycle, facilitating light and air circulation, mitigating harmful atmospheric gases, and absorbing noise pollution. Contribute to the urban economy by facilitating activities such as neighbourhood markets, art festivals, sports events, food festivals, music concerts, and theatrical performances. Location analysis needs to be carried out along with functional analysis of the spaces inside and outside. Author (Bao et al., 2023) quotes that "In order for urban parks to be used efficiently by all age groups, a relationship must be established between the wishes of the users and the park grounds, the plant species in the park, the water element, and the pedestrian-vehicle-bicycle paths". The author article primarily emphasizes on understanding relationship between-social anxiety and the spatial characteristics of open spaces. Social anxiety perceptions of spaces are a result to exposure of unpleasant interaction or lack of outdoor interactions. Engagement with nature enhances cognitive function and supports mental health and immune system performance. Children in the age group of 4-7, 8-11, and 12-15 were considered. Activities were carried out on weekends. The footfall was generally more on weekends during holidays. Activity coverage mapping was done. Social anxiety is linked to kids' exercise levels, how often they play, how long they play, and how far apart they are while they play.

- (Gundersen et al., 2016)The author tries to establish a relationship between the existing available open outdoor spaces and how, when, where do these spaces are used by children. How loss of nature is directly proportional to the opportunities available for children to play outdoors. So play pattern also becomes important aspect here. Irrespective of the where the people live, it is necessary to understand, as to how to engage kids and people in the outdoor activities by introduced play or natural play in nature. The article addresses outdoor open space identification, access to it, frequency and use of these areas, activities in outdoor environments as well. How children find and alter the left over spaces available to them outdoors. Questionnaire for multi-disciplinary group based survey. Having open ended questions Sample and data collection for an age group of 6-12 years old was done
- (McCormack et al., 2010) According to the author, the design of the urban parks does both enable and restrict the physical activity involvement. Furthermore, it is

important as to how quantitative research on physical activities have been neglected in the past. Thus research was carried out which led to the finding that attributes are important for the people to use any particular park. Also it is suggested that social environment also is directly proportional with the perceptions of physical environment, which in turn influences the activity patterns.

- (Lee et al., 2021) The theory of well-being, definitions and associations with the terminology have been explored in the article. Well-being has multiple definitions to it depending on the factor of association (social, physical, cognitive, psychological). As (Yarcheski et al., 2019) quotes it as "multidimensional construct incorporating mental/psychological, physical and social dimensions". The social domain includes the sociological perspectives. Psychological domain includes emotions, mental health, mental illnesses. Cognitive domain includes intellectual indicators. Each of these domains have indicators which might be positive and negative as well. Well-being can be assessed by using structural interviews, non-structured interviews, and standardized options.
- (Goličnik & Ward Thompson, 2010)The author talks about patterns of use of parks and the relationship between design and user preferences. Environment-behaviour research proves that there is a positive interaction between people and place if design element is in accordance with the user preferences and site suitability. Certain spaces like flat terrains, without being divided by trees, not intersected with paths are mostly used by more active groups such as for free play, sports like football, running etc. Hence the space with certain attributes act as deciding factors for type of play or type of usage by the people. Similarly, if such terrain is dispersed with presence of trees, then the use of the space is mostly for passive activities.
- (Shahhosseini et al., 2015) The study highlights that the importance of particularly small urban parks (SUP) in megacities. Thus indicating the increased need of such spaces due to the rising urban population. The study emphasizes the importance of human-based perception in assessing landscape visual quality and proposes that an aesthetic criterion may constitute a component of an effective integrated design. Coherence was designed by trails, rows of trees with the green spaces. Refuge spaces were crafted by big canopy trees providing shade and large amounts of green space. The text explores various studies on the design and perception of urban greens, emphasizing on their importance in creating sustainable cities, impact of architectural

preferences on public perception, and the relationship between aesthetics and emotional bonding.

- (Zhaosen & Guangsi, 2022) The author focuses on "inclusiveness of urban parks can guarantee the recreational opportunities and experience of different user groups, especially the vulnerable ones, and is also an important way to promote the justice of urban green landscape". The study examines elements that affect park users' perceptions and assesses of the inclusivity of these parks. People who use urban parks evaluate how inclusive they are by looking at the conditions and how the parks are used, based on their own recreational experience. This interaction is affected by both factors such as physical and mental, which are linked to passive and active exclusion, as explained by the concept of design exclusion.
- (Padial-Ruz et al., 2021) The author focuses at the attributes and layouts of public urban parks in addition to how people use them and how they feel about them in order to encourage kids to use them and be active. The data was segregated and analysed under the subheads of Study objectives that identifies the type of children visiting the park/ opinions of children/ perceptions of children using the space/ their associations with par/ preferences of parents accompanying the children/ use and type of physical activity performed by children in park. Variables were segregated with each objective separately. Instruments used for assessments were interviews/ surveys/ SOPARC/ visual observations/SOPLAY. Based on it the conclusions were drawn.

2. Understanding of various factors affecting the well-being in children using urban parks.

- (Pollard et al., 2022) The author focuses on primarily 4 questions: (1) How to define child's well-being? (2) What are domains of child well-being? (3) What are the indicators of child well-being? (4) What are the methods to evaluate children's well-being? The notion of well-being can be understood across various fields, age demographics, cultures, communities, and nations. The 5 distinct domains of well-being have been identified as: physical, cognitive, social, economic and psychological. Indicators within each domain are categorized into positive and negative cluster. Psychosocial and physical domains are generally the most measures ones as it can be documented through series of observations. The exact way/ method to measure the domain or the happiness index is very varied and needs to be worked up in detail.

- (Minh et al., 2017)The study focuses on how the early years of childhood- 0-5 years are sensitive periods for development and the environment significantly influences brain development and growth in children. Early experiences significantly influence the mental, physical, emotional, and overall development of children. The relationship between the play areas, open spaces, ease of access, happy neighbourhoods help in development of health. Each urban park has several characteristics to it, amongst which, "place-based" characteristics are of utmost importance for understanding child-space associations. The issues like lack of belonging, social disorder, lack of safety, less social cohesion is directly related to behavioural outcomes in early development. This in turn causes the deterioration and neighbourhood disadvantage. It is also noted that collective socialization, use of community resources, collective involvement, socially interactive activities, parent-open space interactions are the factors that contribute to children's positive well-being.
- (Özgece et al., 2015)According to the author, space is perceived differently by everyone which is related to various factors. Children see spaces differently, therefore the way they use it is also different from adult's usage. Although children prefer to stay close to their place of belonging, yet based on gender and age, their preferences change. It is thus necessary to understand how do children respond, react and observe the structures on their daily journey towards school or home. Is there some kind of association that they built during this process? If yes, what, if no then why? These questions are some prominent pointers for the study. Few questions like- how do this journey influence them for using or from not using the familiar spaces? How and why do they detest using unfamiliar spaces and outdoor connections? The authors talk about how to systematically map their journey from home to school. By doing space syntax data mapping to understand the sense of recognition.
- (Ayala-Azcárraga et al., 2019) The article focuses on the relationship between nature and well-being of humans. The lack of contact with nature leads to physical and mental illnesses. Numerous studies indicate that residing near green spaces positively affects longevity in both adults and children. The use of public spaces also is a binding element in social fabric of the community as it helps in development of social interactions and social-relationships. The size, distance to park, infrastructure and environmental component of the park is directly proportional to health, community, satisfaction level amongst the people using the park.

- (van Dinter et al., 2022) The study reveals that urban park with certain attributes influences the preference of park users. A direct correlation exists among personal characteristics, park usage behaviour, spatial awareness and sustained well-being. Attributes such as the quantity and composition of trees, availability of benches, existence of sidewalks, presence of playgrounds, waste, and flowerbeds are analysed. A mix of playground with apt pathways and less litter was preferred more. Facilities are thus valued variedly over the presence of natural elements available in the park. The study also focuses on the fact the absence of disturbances influences the use of parks and has a positive effect over association with the place.
- (Wallace et al., 2022) Author concludes "that the measures implemented in publicly accessible parks, which assessed health outcomes (i.e., physical, mental, and emotional), focused on children and teenagers up to 18 years old, or up to 22 years old". The quantity of studies was restricted; therefore, it is essential to utilize and enhance the current understanding of parks as places of intervention tackling health issues.
- (Sølvi Helseth, 2021) Author states that the children wellbeing is characterized in several manners and is utilized by diverse array of pr actitioners, researchers along with the policymakers. UNICEF defines child-wellbeing serves as reference and adopts a comprehensive perspective: The UNICEF quotes that
"The true measure of a nation's standing is how well it attends to its children their he alth, safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies in which they are born" (*Places and Spaces*, 2022). The author highlights the attributes of quality of life and their associations with children.
- (Jabbar et al., 2022)The author talks about systematic analysis of urban greens on wellbeing of children. The physical, environmental, psychological, social and subjective well-being was analysed. Specific environments and social behaviours were analysed and urban green spaces were studied along with grey structures and correlation between the two.

3. Assessment of various methods of studies/ theories associated with children's well-being and urban parks.

- (Chaudhury et al., 2014)The author talks about what does mobility mean to children. How and why is independent mobility important for children? Analysis of what are the factors influencing the I.M and what is the relationship between I.M. and outdoor spaces, public spaces, health and social outcomes. A scope was created by the author to understand the mobility concept by studying varied age groups in varied regions for specific amount of time. As quoted by (Chaudhury et al., 2014) "The adoption of techniques such as the Public Open Space Tool (POST), the Bedimo-Rung Assessment Tool–Direct Observation (BRAT-DO), and the Environmental Assessment of Public Recreation Spaces (EAPRS). Few issues that still need to be addressed are as follows: (1) Lack of theoretical framework for mobility. (2) Need to understand the influence of, relationship of, associations on the children's well-being".
- (Franck, 2002) The author very clearly mentions, how in history the role of women was initially limited to specific chores, specific spaces and how there were gendered biases. The initial discussions focus on how women were forced to do certain chores within a certain availability of space. How the outdoors was still not accessible and welcoming for women. It was during 1970, 1980 that the feminist approach came into being and women started getting their dues. The relationship of spaces with women was hence slowly understood and how it influences the children, overall well-being and societal changes were being evidently studied. Interesting findings like housing units' shared coming up with shared pedestrian-oriented outdoor spaces. Co-housing developments started taking place so that the shared spaces reduced load off the women for them to function better.
- (Latfi & Karim, 2012) As mentioned by the author, suitability of planning guidelines for provision of play grounds and fields in Malaysia. It discusses about overall well-being of children based on conventional aspects of parenting, outside home and within the circle of friends. Unfortunately, there are no such laws pertaining to Indian cities and towns. Thus study of these becomes important. Planning principles such as accessibility, safe surroundings, approach, suitability, within the prescribed zone etc. are few important guidelines that need to be incorporated for India today. Observational survey, systematic sampling method was used, interviews of the users and local authorities, behavioural mapping and data analysis.

- (Meng & Wang, 2022)The study does comparative analysis of review tools to access the children- focused public open spaces. 11 tools and varied methods of analysis have been carried out to compare and analyse the varied situations. Open spaces are the spatial magnets for cultural life in cities. Public open space tool, BRAT- Do etc. overall access the environment. The study uses tools to success parks physical environment from children's activities. Audit tools access 3-16 properties of open spaces and individual items. EAPRS- most detailed one. C-POST tool- most effective to study attributes of open spaces. CPAT tool- evaluates quality of community park environment. PARA, READI, Play space tool, PSQAT, QUINPY, PSAT, OCUS.
- (Lee E. S., 1966) Push Pull theory- the theory is coined by Ravenstein to develop "Laws of Migration". The theory states that the motivation to participate in any outdoor activity is due to various forces that push or /and pull towards the participation. Here, the push - explores the of what motivates the child or/and the parent to be involved in outdoor participation/ play/ activity. The pull here- is attributes of open areas which guides the child to actively participate. It is positive affordances that nature offers to child.
- (Isis Chong, 2020) Affordances theory- Gibson coined this theory. It states that "relationships exist naturally and do not need to be perceived". The theory states that a child uses the space available as he perceives the function. Environment and individual at times together offer affordances, which shape an individual's personality (children's personality). As this positive effect helps the children observe more social, positive and healthy surroundings. This in turn helps in developing a better health, mind awareness, social participation and psychological associations with the space being used.
- (Soran University et al., 2019)Jean Piaget was a Swiss psychologist. According to him, there are 4 stages of development with respect to the age groups. As the kids move from one year into another their cognitive skills change drastically. *(Sensorimotor stage- from 0-2 years of age)*- In this stage the infants try to understand objects through sensory activities like touching, smelling. They start to imitate the others in the surrounding. *(Preoperational stage- from 2-7 years of age)*- Children are capable of using complete sentences, express their views, opinions. They have the knowledge of how to use / perceive/ engage in the surroundings according to their perceptions. They tend to imitate the surroundings. *(Concrete operational stage- from 7-11 years of age)*- The sense of logical thinking, understanding and communications

is strongly built. Actions/ reactions/ their own way of thinking gets developed at a faster rate as the influences are greatly in the form of outdoor settings. They can easily understand details/ positives/ negatives of any situation. Based on their understanding by reactions, they comprehend the environmental engagement and their participation with the same. Problem solving capabilities start to develop as well. *(Formal operational stage- 12 years and above)*- In this age, children are on the brink of entering the teens. They have their preconceived opinions, behavioural attributes and associations built with outdoor environment based on their own logical understandings.

- (Martin, 2001) The author talks about the Radburn's concept of city development which took place after the Garden city movement. Critical analysis of the same has been done in order to understand the relevancy of the concept, which is in contrast to its own statement. The "new urbanism concept" regardless of its planning, considers Radburn's concept as obsolete, because of a few factors such as- landscape was not given importance, left over spaces were treated as landscapes sectors, traditional system of streetscape was followed which was not in sync with the new needs of the society. The community open spaces have been carved out from left over spaces, hence compromises on the concept of connected open spaces, accessible by public. Space-specific landscapes were a part of planning. All these planning principles of Radburn and the planning experts post Radburn's theory had a huge impact on how the children were using these spaces, how they were interacting as a community, how the concentration of small spaces leads to a bigger space and how individual spaces are cut off from the community spaces. Hence the study of town planning principles of Radburn, Ebenezer Howard, Clarence Stein, and Henry Wright are extremely important in post war era.
- (Nabila, 2021) The author has tried to prove a point that Garden city movement and its relevancy today can be justified with minor alterations and adjustments. The main elements of Garden city were: Concentric forms, Zoning and land use patterns, Individuality in terms of architectural treatment, hierarchy of roads. The blocks, streets and dwellings had an underpinned layer of the GCM so as to ensure a social interaction and community participation was taken care of. Other localities in UK, North America, Europe, and Australia were also benefitted by this movement and planning.
- (Park, 2017)The article talks about how the urban parks are an important part of our society. Various methods like SOPARC, study of built environmental character,

travel behaviour search -5D variable have been explored and used in terms of analysis of the parks studied. The co-relation of spaces with varied attributes, their analysis and co-dependence has been explored in the study done by author. The effects of temporal factors, UAV observations have been done to understand significant connection between the park and neighbourhood with the children.

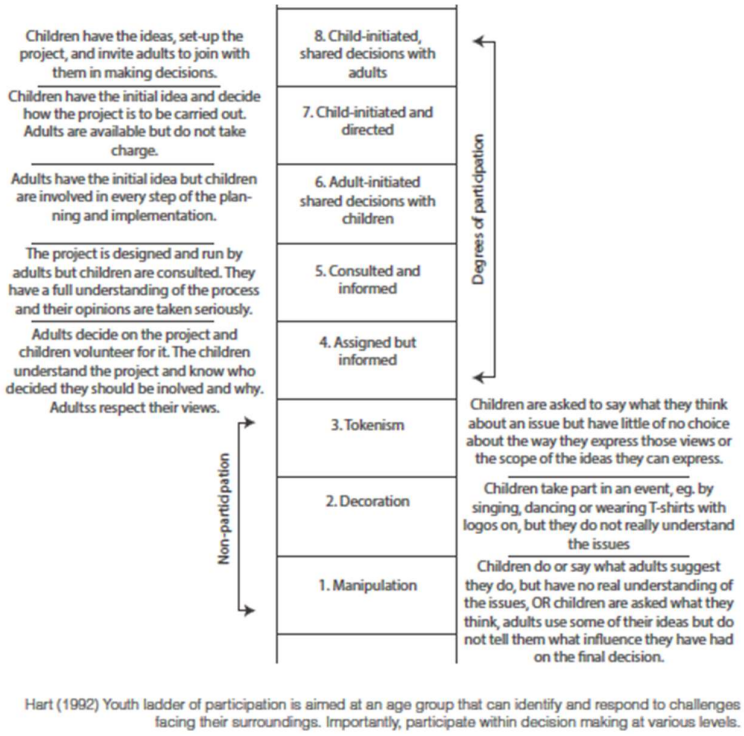
- (Sezavar et al., 2023) The study focuses on the impact of vegetation distribution and its density on the urban park safety. A discrete choice experiment was conducted on 300 visitors in Mashhad, Iran, to evaluate different vegetation arrangements. The results as quoted by author showed that "perceived safety is strongly dependent on visual and physical accessibility, spatial enclosure, complexity, and cohesion created by vegetation". "The discrete choice method" is a quantitative technique used to estimate "people's preferences in various fields, including environmental economics, tourism, marketing, transport, agricultural industry, and health". It is derived from Lancaster's theory of the customer and McFadden's models of random utility. The method estimates the categorises people's choices by focusing on the relative importance of attributes. The study uses theories such as prospect-refuge along with permeability theory to examine the impact on perceived safety by physical environment.
- (Kumar et al., 2020) The Author highlights the need for creating better space for children by understanding the policies for socialization, health, education and safety. The prime focus here is on understanding the subjective and objective well-being of children with reference to existing policies and programs run by the government. It highlights the assessment of children across 640 districts to develop initiative based policies at national and state level. Thus, the study highlights key points for discussions as identified through research gaps.
- (Simonds et al., 2009) Author explains many concepts of Landscape architecture that are overlooked. He talks about human environment, need for everyone to create his own environment based upon perceptions. How land, ecological issues, usage of land in a particular way impacts our way of looking at a space. The effect of vegetation, topography, landscape character of a space defines at times, how it would be used by children. At times the effect may be in accordance to the variety that that land has to offer, but at times, it may have directly impact of how people tend to use it

the exact opposite way to which it was intended for. Thus studying the attributes along with parameters is also of utmost importance when analysing urban parks.

4. **Children's participation and involvement in the process of / design of child inclusive urban parks**:

- (Ataol et al., 2019) The study presents a methodical literature evaluation of 30 research papers from 1990-2017, aimed at evaluating the current advancements in participatory approaches within urban planning to develop child-centric urban environments. This systematic study yielded a (1) thorough, quantitative overview of current studies concerning children's engagement (2) an efficient way to design and plan with respect to the needs of children (3) a compilation of prerequisites for the effective implementation of planning with children and its connection to sustainable communities (4) examination of relationship between urban planning, methodologies, strategies, and results for child-centric urban settings; (5) identifying the existing gaps in literature study conducted so far; and (6) Analysis of the importance of policies and the relationship between policies, urban planning, methodologies, and strategies for future research.
- (Krishnamurthy et al., 2018) The Author talks about how the transition of children has been from playing outdoors to playing indoors. The time spent indoors thus has increased considerably along with reduction in active engagement of physical play. This is a result of public spaces being oriented towards the adult spaces. The Public parenting is new term which has evolved due to spaces being utilized and designed for adults. The author quotes, "Facilities are now being divided into 3 categories Child directed facilities, family directed facilities and child and family friendly public spaces". Methods of child-friendly practices across, Rotterdam, Dutch context, Amsterdam, Israel, Vancouver, U.S, Dublin, Bristol have been mentioned in detail.

Figure 1- Youth ladder of participation by (Sukanya Krishnamurthy, 2018)


Children have the ideas, set-up the project, and invite adults to join with them in making decisions.
Children have the initial idea and decide how the project is to be carried out. Adults are available but do not take charge.
Adults have the initial idea but children are involved in every step of the plan-ning and implementation.
The project is designed and run by adults but children are consulted. They have a full understanding of the process and their opinions are taken seriously.
Adults decide on the project and children volunteer for it. The children understand the project and know who decided they should be inolved and why. Adultss respect their views.
8. Child-initiated, shared decisions with adults
7. Child-initiated and directed
6. Adult-initiated shared decisions with children
5. Consulted and informed
4. Assigned but informed
3. Tokenism
2. Decoration
1. Manipulation
Degrees of participation
Non-participation
Children are asked to say what they think about an issue but have little of no choice about the way they express those views or the scope of the ideas they can express.
Children take part in an event, eg. by singing, dancing or wearing T-shirts with logos on, but they do not really understand the issues
Children do or say what adults suggest they do, but have no real understanding of the issues, OR children are asked what they think, adults use some of their ideas but do not tell them what influence they have had on the final decision.

Hart (1992) Youth ladder of participation is aimed at an age group that can identify and respond to challenges facing their surroundings. Importantly, participate within decision making at various levels.

- (Biggs & Carr, 2015) The article talks about how the children and adult considerations and their involvement is reproduced in the policy statements regarding the urban environment. It illustrates strategies for age-friendly and children friendly environments Suggestions such as intergenerational play emergence from creative spaces is emphasised. Emotionally supportive shared places are made when people of different ages use the space together and separately.
- (Wilhelmsen et al., 2023) For children aged 0-2years of age, techniques like observation and interviews of caregivers has been widely adopted worldwide. Children between 2-6 approaches like drawing, map making, interviews, use of photo documentation and field observations have been used. This participatory approach helped the author derive certain important pointers such as Types of spaces, current use and reasons for use, wishes for changes if any and why, negative factors that need to be addressed.

- (Jansens et al., 2023) The article emphasizes the perspectives of children regarding the design of play areas. It aptly recognises the guidelines along with identifying the strategies for supporting children's participation with public play spaces. "best fit" framework approach has been used by the author based on "Lundy's model of children's participation". The initial process involved utilizing photographs and quotations from children to illustrate the locations and the amenities they provide, as per the children's descriptions. Additionally, it comprised an overview of the locations that the parents had identified.
- (Horelli, 1997)Use of various theories such as (1) Normative substantive Theory: This theory deals with how to envision, plan and organise the settings within the parks. Intermediate level consists of heterogeneous network created by integrating many underlying factors. (2) Normative Procedural theory: Describes the phases of creative problems identified by the users via learning. Here the children participation was considered as combination of actions, communication and research. (3) explanatory theory: Interplay of micro and macro activities inside the play grounds which might be causing an ecological development. By applying the 3 techniques has results achieved were a combination of individual transactions of issues and identified blocks by girl and boy users in the parks.
- (Chawla, 2001) The author emphasizes on how different kinds of children's involvement can be recorded, how their own opinions and values can be evaluated, and how participatory monitoring can be carried out. Mandated involvement: The child perceives a moral and cultural duty to engage and regards the opportunity to participate as a privilege. Although there is some degree of choice, cultural conventions exert a significant influence on this occurrence.

Designated involvement: Adults, including educators and guardians, facilitate chances for participatory training. This engagement is planned by adults, yet the child perceives it as valuable.

Invited participation: It is initiated and regulated by adults, however the child retains the right to withdraw without experiencing any disadvantage.

Negotiated participation: The child is allocated a participating role, however possesses the opportunity to negotiate the execution and extent of their involvement.

Independent negotiated participation: The child autonomously begins and regulates the engagement, determining the extent and nature of involvement as well as its duration.

Progressive participation: As the child enhances their competence, they encounter possibilities to engage in novel forms of participation, undertake increased responsibilities, and discover new avenues for significant involvement in the community.

Multidisciplinary participation: It is initiated and endorsed by a collective, which jointly negotiates the extent and nature of involvement.

- (Shi et al., 2023) The research focuses on the assessment of framework for inclusivity in design of urban parks, highlighting the universal aspects of sensory, cognitive, and motor ability support while investigating their influence on park- design practices. Study incorporates the diverse needs and capabilities of individuals into the indicators, establishing a widely applicable assessment framework. Visual accessibility was examined using an experiential landscape methodology, while physical accessibility and activity intensity along routes were analysed utilizing space syntax techniques. Development of the Park Inclusive Design Index(PIDI) is an interesting approach which focuses on capacity demand model.

Research Gap:

1. How do underexplored or overlooked attributes of spatial design in urban parks influence user engagement, well-being, and environmental sustainability, particularly in rapidly urbanizing areas.
2. How thoroughly do the current planning principles/guidelines for urban parks in Pune meet the needs of a rapidly growing population, and how can they be adapted to better address contemporary challenges such as sustainability, inclusivity, and climate resilience?
3. How can urban park design be reinstated by integrating children's well-being theories with environmental theories to create spaces that foster holistic development and sustainable interactions with nature?
4. What are the underlying factors contributing to the discrepancy between design execution and policy formulation in urban park development, and how can alignment between these two areas be improved to ensure effective, user-centered spaces?

Problem statement:

Based on the literature review, it has been observed that countries today are increasingly recognizing the significance of children's well-being along with challenges associated with them. Countries like New Zealand and Denmark have implemented measures in city planning and development to address these concerns. Research in this area has predominantly examined the attributes of urban parks and effects childrenincluding the correlation between design elements and children's preferences. The study suggests a need for further investigation into independent and dependent variables, as well as temporal factors. Thus, understanding the correlations among the factors is essential. Moreover, a comprehensive examination of existing theories proposed by researchers is required to explore the connections between these associations and attributes.

Need of study:

Children develop their understanding of spaces and surroundings based on how objects and people associate with each other. Use of parks helps in development of varied skills that help them contribute socially in shaping their lives. As described by the United Nations Convention, 'right to play" is a major problem today. Many countries today are framing laws pertaining to children's participatory approach and city design. The research thus focuses on specific attributes that contribute to the well-being of children while using public parks.

Motivation for study:

Certain questions like- why do some children prefer certain parks, certain type of plays patterns, particular way of interaction, specific areas within the parks has always intrigued me as a mother of a toddler. Today, children and their views/ opinions/ perspectives are molded by the physical environments they use. Play being a major factor in development, location of play, design of space, socially available fabric for interaction, architectural elements, and landscape design are some factors that help develop the physical and mental well-being. Play is generally governed by certain parameters. Study of such parameters in varied typologies of urban parks will help in identifying the preferred, non-preferred attributes for play in urban parks.

Research inquiries derived from research limitations found in the literature review:

Based on problem statement identified from the literature review, the following questions are defined for this research:

1. How does the Spatio-cultural relationship in urban parks influence the well-being of children in the age group (3-9 years).
2. How do functional attributes of urban park influence the physical parameter of well-being in children?
3. How do visual attributes contribute in mental well-being of children in urban parks?
4. In what ways does the well-being of children rely on the spatio-cultural attributes of urban parks?

Aim:

To study urban parks and well-being of children: An inquiry into spatio-cultural relationship in parks of Pune city.

Objectives:

1. To study the functional and visual attributes of spaces in urban parks.

2. To investigate the spatial attributes of urban park design and their effect on children-behavior/ children engagement and well-being.

3. To understand the children's preference of certain spaces over other spaces in urban parks.

4. To identify and formulate a children-well-being index document/ criterion for design of urban parks in Pune city.

Hypothesis:

Alternative Hypothesis: The spatio-cultural attributes of urban parks significantly influence children's well-being.

Null Hypothesis: The spatio-cultural characteristics of urban parks exert a negligible impact on children's well-being.

Scope of study:

This study concentrates on children aged 3 to 9 years, a group characterized by distinct developmental stages. Children aged 3 to 6 are generally accompanied by adults in public spaces, while those aged 6 to 9 demonstrate semi-independence, using urban parks both individually and in groups. The study specifically targets this age group to assess their interaction with urban park spaces. The research is geographically limited to the city of Pune, focusing exclusively on a selection of urban parks that represent specific typologies. This scope is chosen to enable a detailed study of the park design and to understand how it effects spatial use, behavior and preferences while being used primarily by children. The study will not address children outside this age range or parks located outside of Pune, and will not cover non-urban or rural spaces. The study elucidates the correlation between urban park design and children's developmental and social requirements by concentrating on these vital variables.

Delimitation of study:

Pune is located in Maharashtra. Being amongst a few urbanized cities in India, it is expanding beyond its designed boundaries today. According to (Census 2011), urban children population in age group 0-5 is 28.5% and between 6-9 is 20.5%. Maharashtra comprises of 29.8% of children in the age group 0-5 and 20.4% in 6-9 age group. Pune has typography of a basin shape with hills surrounding the city. Due to the recent developments, the govt. has also included many talukas, districts under Pune city. It is expanding exponentially. The open spaces, green belts are transforming as a result of expansion. This has a direct effect on children's participation in available urban fabric. Thus, Pune represents a case study for carrying out the research because mixed typology of spaces is available for analysis. Research and analysis are being conducted regarding specific typologies of urban parks in Pune. Certain samples are selected based on criterions mentioned in detail in further parts of the thesis. However, neighborhood parks and society gardens have not been considered as the part of study. Hence, the findings are limited to public urban parks in Pune city (typologies being private parks, public parks or public-private partnership-based parks).

The study does not include social, economic attributes and related variables in the study design. As many formats of observational methods would be used during the process

of pilot study, the appropriate methods of data collection via child friendly methods and tools shall be used.

Working definitions used in the research:

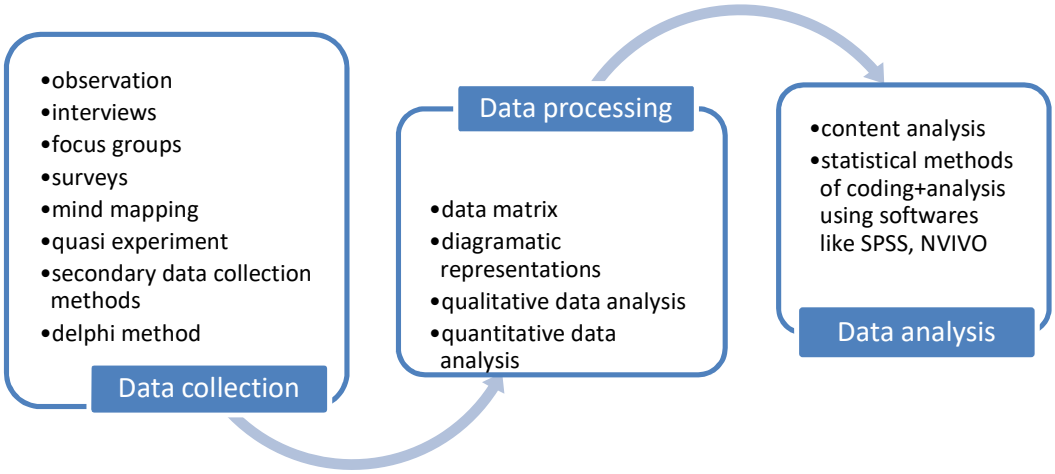
1. **Independent variables:** These variables can be manipulated or varied in experimental study to explore their effects. They are termed "independent" because they remain unaltered by any other variables in the study. The attributes that influence the study are as follows: Functional, Symbolic Temporal, Societal, Design, Planning, Visual/ Spatial, Economic. (Lee, 1966)
2. **Dependent variables:** These variables might alter/ change as per independent variable manipulation. They are an experimental outcomes measured by the researcher which may vary as a direct outcome of change in independent variable. Dependent variables are also termed as response variables because they correspond to changes in another variable. Focusing on domains of well-being of children (age group of 3-9 years of age), the dependent attributes are as follows: physical, mental, spiritual, social, environmental, cultural in their growth and development. (Asher Ben-Arieh, 2014)
3. **Children**: A person under the age of 18 is considered a child legally, unless the legislation specifies that majority has been attained earlier, is defined as child by UNCRC and Government of India, 2018 (Malik F, 2023)
4. **Well-being:** As quoted by (Statham & Chase, 2010) **"**Wellbeing is a term used interchangeably with quality of life, happiness and satisfaction". "Some regard the terms as interchangeable, while others regard well-being as one component of the broader concept of QOL". "The concepts of well-being and QOL are therefore very closely related in Schalock's model" (Galloway, 2006)
5. **Cultural well-being:** As quoted by (Galloway, 2006) "the vitality that communities and individuals enjoy through: participation in recreation, creative and cultural activities; and the freedom to retain, interpret and express their arts, history, heritage and traditions".
6. **Urban parks:** As quoted by (Withagen & Caljouw, 2017) "Urban parks are defined as delineated open space areas, mostly dominated by vegetation and water, and reserved for public use".

7. **Spatio-cultural relationship:** The "spatio-cultural relationship" between children and urban parks co-relates to how physical design, location of urban parks influence the cultural experiences and social interactions of children within those spaces, shaping their sense of place, play patterns, and community engagement, often tied to factors like accessibility, design elements, and cultural practices within a particular neighbourhood or city. (Bo Mu, 2021)

Methods of study adoption and theories to be used for study and analysis:

A mixed-method strategy shall be employed for the purpose of the study. The focus here is on study of independent variables/ dependent variable, environmental psychology studies and behavioral studies pertaining to children, spaces and their relationships. Thus, the research is conducted by the use of mixed method approach. (Creswell J,2008)

Table 2- Research methodology indicating- a mix method research



The present research will draw pointers from the detailed study of following theories**:**

1. Space Syntax Theory: Bill Hillier, Julianne Hanson: (Griffiths, 2011)

2. Using the Concept of Otterlo Circle by Aldo Van Eyck: (Campos Uribe et al., 2020)

3. Affordances theory and its associations with behaviour settings:(Jones, 2003)

4. Theoretical framework of perception by James Gibson: (Mace, 2005)

5. Theory of cognitive development (Piaget, 1971)

6. Jay Appleton's prospect and refuge theory (Appleton, 1975)

Expected Outcomes:

1. Matrix of physical and visual parameters and their relationship with attributes of children's well-being.
2. To determine role of spatial design of urban parks in well-being of children.
3. To comprehend the reasons behind children's preference for certain areas over others in an urban park
4. To formulate design based guidelines for children's well-being index.

Beneficiaries:

1. Municipal corporations and professionals for standardizing design process.

2. Human behavior analysists, counselors and Urban 95 team/ BVL foundations/countries developing the concept of child-friendly cities and child-centric development.

3. Policy making professionals for open space structuring in the city.

4 Economists/ policy makers/ city and town planners and urban planners.

Thesis Structure chart:

Urban parks and well-being of children: An inquiry into spatio-cultural relationship in parks of Pune city			
Topic 1-Parameters of well-being in children using urban parks.	Topic 2-Planning principles and attributes study influencing the park usage.	Topic 3-Study of specific attributes related to park usage and design.	Topic 4-Co-relation of characteristics of urban parks and how/ why and when do children use urban parks.
Question 1 for literature review - Why are the visual and functional parameters important for children's well-being?	Question 2 for literature review - What is the significance of planning principles in urban parks for the well-being of children?	Question 3 for literature review – What are the characteristics for visual attributes that influence well-being in children using urban parks?	Question 4 for literature review – What effects do the spatio-cultural relationship of urban park have on children?
Research gap 1 from LR- How do underexplored or overlooked attributes of spatial design in urban parks influence user engagement, well-being, and environmental sustainability, particularly in rapidly urbanizing areas.	Research gap 2 from LR- Do the existing planning principles and design guidelines for urban parks in Pune meet the needs of a rapidly growing population, and how can they be adapted to better address contemporary challenges such as sustainability, inclusivity, and climate resilience?	Research gap 3 from LR- How can urban park design be reinstated by integrating children's well-being theories with environmental theories to create spaces that foster holistic development and sustainable interactions with nature?	Research gap 4 from LR-What are the underlying factors contributing to the discrepancy between design execution and policy formulation in urban park development, and how can alignment between these two areas be improved to ensure effective, user-centered spaces?
Research question 1- How does the Spatio-cultural relationship in urban parks influence the well-being of children in the age group 3-9 years.	Research question 2- How do functional attributes of urban park influence the physical parameter of well-being in children?	Research question 3- How do visual attributes contribute in mental well-being of children in urban parks?	Research question 4- How is the children's well-being dependent on the spatio-cultural characteristics of urban parks?
Research objective 1- To study the functional and visual attributes of spaces in urban parks.	Research objective 2- To investigate and study the spatial attributes of urban park design and its effect on children behaviour/ children engagement and well-being.	Research objective 3- To understand the children's preference of certain spaces over other spaces in urban parks.	Research objective 4- To identify and formulate a children-well-being index document/ criterion for design of urban parks in Pune city.

Alternative Hypothesis: The spatio-cultural attributes of urban parks significantly influence children's well-being. Null Hypothesis: The spatio-cultural characteristics of urban parks exert a negligible impact on children's well-being.			
Methodology for objective 1- (a) Naturalistic observation- a research method involving collection of data as it is, without manipulating the subjects being observed. (b) Anecdotal observations are factual accounts of incidents that are gathered in a casual or non-systematic manner, based on personal observation.	Methodology for objective 2- (c) running records- Running records are detailed, objective, and sequential written accounts of a child's behaviour or activity during a specific time or activity. (d) time-sampling	Methodology for objective 3- (e) Sociogram- a visual representation of the social relationships and preferences of a group of people. (f) Mind mapping (g) Quasi experiment- Qualitative method to be used for Pilot study.	Methodology for objective 4- (h) The System for Observing Play and Recreation in Communities (SOPARC) is a method for collecting data on physical activity and contextual factors in parks. It uses technique called as momentary time sampling. (i) Space syntax theory- It is a method used to comprehend the relationship between urban environment and human behaviour.
Probable outcome of objective 1- Matrix of physical and visual parameters and their relationship with attributes of children's well-being.	Probable outcome of objective 2– To determine the significance of spatial design of urban parks in the well-being of children.	Probable outcome of objective 3– To comprehend the reasons behind children's preference for certain areas over others in an urban park	Probable outcome of objective 4– To generate a design based well-being index based on interactions/ observations/ discussions with children using the urban parks.
Viewership (usefulness of outcome) of objective 1- Municipal corporations and standardizing design process.	Viewership (usefulness of outcome) of objective 2- Human behaviour analysists, counsellors and Urban 95 team/ BVL foundations/countries working for betterment of child friendly cities and child centric development.	Viewership (usefulness of outcome) of objective 3- Policy making professionals for open space structuring in the city.	Viewership (usefulness of outcome) of objective 4- Economists/ policy makers/ city and town planners and urban planners.

References:

Ataol, Ö., Krishnamurthy, S., & van Wesemael, P. (2019). Children's Participation in Urban Planning and Design: A Systematic Review. *Children, Youth and Environments*, *29*(2), 27–47. https://doi.org/10.7721/chilyoutenvi.29.2.0027

Bao, Y., Gao, M., Luo, D., & Zhou, X. (2023). Urban Parks—A Catalyst for Activities! The Effect of the Perceived Characteristics of the Urban Park Environment on Children's Physical Activity Levels. *Forests*, *14*(2), 423. https://doi.org/10.3390/f14020423

Ben-Arieh, A., Casas, F., Frønes, I., & Korbin, J. E. (2014). Multifaceted Concept of Child Well-Being. In A. Ben-Arieh, F. Casas, I. Frønes, & J. E. Korbin (Eds.), *Handbook of Child Well-Being* (pp. 1–27). Springer Netherlands. https://doi.org/10.1007/978-90-481-9063-8_134

Biggs, S., & Carr, A. (2015). Age- and Child-Friendly Cities and the Promise of Intergenerational Space. *Journal of Social Work Practice*, *29*(1), 99–112. https://doi.org/10.1080/02650533.2014.993942

Camfield, L., Streuli, N., & Woodhead, M. (2010). Children's Well-being in Developing Countries: A Conceptual and Methodological Review. *The European Journal of Development Research*, *22*, 398–416. https://doi.org/10.1057/ejdr.2010.11

Campos Uribe, A., Miguel Pastor, M. D., Lacomba Montes, P., & Martínez Ventura, J. (2020). Multiculturalism in Post-War architecture: Aldo van Eyck and the Otterlo Circles. *ACE: Architecture, City and Environment*, *14*(42). https://doi.org/10.5821/ace.14.42.7033

Chaudhury, M., Oliver, M., Badland, H. M., & Mavoa, S. (2014). Public Open Spaces, Children's Independent Mobility. In B. Evans, J. Horton, & T. Skelton (Eds.), *Play, Recreation, Health and Well Being* (pp. 1–21). Springer Singapore. https://doi.org/10.1007/978-981-4585-96-5_17-1

Franck, K. (2002). *Women and Environment* (pp. 347–362).

Galloway, S. (2006). Cultural Participation and Individual Quality of Life: A Review of Research Findings. *Applied Research in Quality of Life*, *1*, 323–342. https://doi.org/10.1007/s11482-007-9024-4

Goličnik, B., & Ward Thompson, C. (2010). Emerging relationships between design and use of urban park spaces. *Landscape and Urban Planning*, *94*(1), 38–53. https://doi.org/10.1016/j.landurbplan.2009.07.016

Griffiths, S. (2011). *Temporality in Hillier and Hanson's Theory of Spatial Description: 2*(1).

Gundersen, V., Skår, M., O'Brien, L., Wold, L. C., & Follo, G. (2016). Children and nearby nature: A nationwide parental survey from Norway. *Urban Forestry & Urban Greening*, *17*, 116–125. https://doi.org/10.1016/j.ufug.2016.04.002

Horelli, L. (1997). A methodological approach to children's participation in urban planning. *Scandinavian Housing and Planning Research*, *14*(3), 105–115. https://doi.org/10.1080/02815739708730428

Jabbar, M., Yusoff, M. M., & Shafie, A. (2022). Assessing the role of urban green spaces for human well-being: A systematic review. *GeoJournal*, *87*(5), 4405–4423. https://doi.org/10.1007/s10708-021-10474-7

Jansens, R., Prellwitz, M., Olofsson, A., & Lynch, H. (2023). The Representation of Children's Participation in Guidelines for Planning and Designing Public Playspaces: A Scoping Review with "Best Fit" Framework Synthesis. *International Journal of Environmental Research and Public Health*, *20*(10), 5823. https://doi.org/10.3390/ijerph20105823

Jones, K. S. (2003). What Is an Affordance? In *How Shall Affordances Be Refined?* Routledge.

Kurt Konakoğlu, S. S., DemiRel, Ö., & ÇeliK, K. T. (2021). A Research on the Usage Reasons of Urban Parks: A Case Study of Amasya Courthouse Urban Park. *Mehmet Akif Ersoy Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, *12*(1), 18–30. https://doi.org/10.29048/makufebed.846927

Latfi, M. F. M., & Karim, H. A. (2012). Suitability of Planning Guidelines for Children Playing Spaces. *Procedia - Social and Behavioral Sciences*, *38*, 304–314. https://doi.org/10.1016/j.sbspro.2012.03.352

Lee, E. S. (1966). A theory of migration. *Demography*, *3*(1), 47–57. https://doi.org/10.2307/2060063

McCormack, G. R., Rock, M., Toohey, A. M., & Hignell, D. (2010). Characteristics of urban parks associated with park use and physical activity: A review of qualitative research. *Health & Place*, *16*(4), 712–726. https://doi.org/10.1016/j.healthplace.2010.03.003

Meng, X., & Wang, M. (2022). Comparative Review of Environmental Audit Tools for Public Open Spaces from the Perspective of Children's Activity. *International Journal of Environmental Research and Public Health*, *19*(20), 13514. https://doi.org/10.3390/ijerph192013514

Minh, A., Muhajarine, N., Janus, M., Brownell, M., & Guhn, M. (2017). A review of neighborhood effects and early child development: How, where, and for whom, do neighborhoods matter? *Health & Place*, *46*, 155–174. https://doi.org/10.1016/j.healthplace.2017.04.012

Nabila, N. (2021). *The Concept Of Garden City And Its Relevancy in Modern City Planning*. *1*, 1–7.

Özgece, N., Edgü, E., & Talug, M. (2015). *Exploring children's perceptions and experiences of outdoor spaces*.

Padial-Ruz, R., Puga-González, M. E., Céspedes-Jiménez, Á., & Cabello-Manrique, D. (2021). Determining Factors in the Use of Urban Parks That Influence the Practice of Physical Activity in Children: A Systematic Review. *International Journal of Environmental Research and Public Health*, *18*(7), 3648. https://doi.org/10.3390/ijerph18073648

Park, K. (2017). Psychological park accessibility: A systematic literature review of perceptual components affecting park use. *Landscape Research*, *42*(5), 508–520. https://doi.org/10.1080/01426397.2016.1267127 *Places and Spaces: Environments and children's well-being | Innocenti Global Office of Research and Foresight*. (2022, May 24). https://www.unicef.org/innocenti/reports/places-and-spaces-environments-and-childrens-well-being

Sezavar, N., Pazhouhanfar, M., Van Dongen, R. P., & Grahn, P. (2023). The importance of designing the spatial distribution and density of vegetation in urban parks for increased experience of safety. *Journal of Cleaner Production*, *403*, 136768. https://doi.org/10.1016/j.jclepro.2023.136768

Shahhosseini, H., KAMAL BIN M. S., M., & BIN MAULAN, S. (2015). Visual Preferences of Small Urban Parks Based on Spatial Configuration of Place. *Welcome to the Site of International Journal of Architectural Engineering & Urban Planning*, *25*(2). https://doi.org/10.22068/ijaup.25.2.84

Shi, W., Mahdzar, S. S. S., & Li, W. (2023). Park Inclusive Design Index as a Systematic Evaluation Framework to Improve Inclusive Urban Park Uses: The Case of Hangzhou Urban Parks. *Applied Sciences*, *13*(23), 12954. https://doi.org/10.3390/app132312954

Soran University, Babakr, Z. H., Mohamedamin, P., & Kakamad, K. (2019). Piaget's Cognitive Developmental Theory: Critical Review. *Education Quarterly Reviews*, *2*(3). https://doi.org/10.31014/aior.1993.02.03.84

van Dinter, M., Kools, M., Dane, G., Weijs-Perrée, M., Chamilothori, K., Leeuwen, E., Borgers, A., & van den Berg, P. (2022). Urban Green Parks for Long-Term Subjective Well-Being: Empirical Relationships between Personal Characteristics, Park Characteristics, Park Use, Sense of Place, and Satisfaction with Life in The Netherlands. *Sustainability*, *14*, 4911. https://doi.org/10.3390/su14094911

Wallace, D. D., Han, B., Cohen, D. A., & Derose, K. P. (2022). The Effects of Park-Based Interventions on Health-Related Outcomes Among Youth: A Systematic Review. *American Journal of Health Promotion*, *36*(6), 1029–1044. https://doi.org/10.1177/08901171221077812

Wilhelmsen, T., Øvreås, S., Roll-Hansen, H., Bjerknes, A.-L., & Thorrud, S. (2023). Developing child-friendly cities: Young children's participation in urban planning. *Journal of Childhood, Education & Society*, *4*(3), 274–290. https://doi.org/10.37291/2717638X.202343290

Withagen, R., & Caljouw, S. R. (2017). Aldo van Eyck's Playgrounds: Aesthetics, Affordances, and Creativity. *Frontiers in Psychology*, *8*, 1130. https://doi.org/10.3389/fpsyg.2017.01130

Zhaosen, Z., & Guangsi, L. (2022). Research on the Influencing Factors of Users’ Perception of the Inclusiveness of Urban Parks Based on the Grounded Theory. *Landscape Architecture Frontiers*, *10*(3), 12. https://doi.org/10.15302/J-LAF-1-020066

Signature:

Signature:

Date: 14.11.2024

Name of scholar: Shefali Deepak Arora

Date: 14.11.2024

Name of guide: Dr. Bhavesh Shah